Haier SERVICE MANUAL

Model No. ESA412K

Feature

- Top Discharge Airflow Pattern
- Modern Family-look Design
- 3 Cool Settings, 3 Fan Settings
- Easy-to-ins tall Mounting Kit
- Easy-Access Washable Filter
- Digital Time & Temperature Display
- 24 Hour on/off Timer

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death

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Haier Group

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1. Product Code Illumination and Series Introduction

1). Model identification:

ESA □ □□ □
A B C D

A: Abbre viation of Energy Star

B: The type of refrigerant
4:R410A

C: Nominal cooling capacity (BTU/h) with the first two numbers based on one thousand unit

D: Desigh code

Examples:

ESA412K

It represents remote control window air condition r. Cooling capacity is 12000BTU/h and the power supply is 115V/60Hz.

2). Standard situation/conditions

No.	Operating condition	Indoor air state		outdoor air state	
		D.B. ℃	W.B. ℃	D.B. ℃	W.B. ℃
1	Nominal cooling	26.7	19.4	35	23.9

2. Specification

Item			Unit	ESA412K
Cooling capacity			BTU/h	12000
Heating capacity			BTU/h	/
Power supply			Ph,V, Hz	1, 115, 60
Cooling		Power input	W	1110
		Running current	A	10
		EER	BTU/(h.w)	10.8
Heating		Power input	W	/
		Running current	A	/
		COP	BTU/(h.w)	/
Sound Level		Indoor side	dB(A)	62
		Outdoor side	dB(A)	67
Case		Height	inches	14 3/8
		Width	inches	19
		Depth	inches	18 1/8
Packaging dimensions		Height	inches	17
		Width	inches	21 1/4
		Depth	inches	22
Weight		Net	lbs	65
		Gross	lbs	73
Compressor		Type		Rotary
		Model	/	44A271AG&09KC
		Running cap. For comp	μF	60μF/250V
Pressure		Hi-Pressure	Psig	560
		Low-Pressure	Psig	240
Refrigerant		Model	R22 or R410A	R410A
		Charge	OZ	18
Fan	Type	Indoor unit	/	centrifugal
		Outdoor unit	/	axial
	Fan Speed	Indoor unit	r/min	1600/1500/1380
Air volume			CFM	270/250/220
Moisture removal			Pints/hr	3.5

3. Safety and Precaution

WARNING: Following these basic precautions will reduce the risk of fire ,electrical shock ,injury or death when using your air conditioner .

1) Air conditioner must be connected to proper electrical outlet with the correct electrical supply .

2) Proper grounding must be ensured to reduce the risk of shock and fire .
DO NOT CUT OR REMOVE THE GROUNDING PRONG.
If you do not have a three-prong electric receptacle outlet in the wall, have a certified electrician install the proper receptacle . The wall receptacle MUST be properly grounded .

3) DO not use if power cord is frayed or damage . Also avoid using if there are cracks or abrasion damage along the length ,plug or connector .

4)DO NOT USE AN ADAPTER OR AN EXTENSION CORD.

5)When installing your air conditioner in a window,make sure the window is strong enough to hold the weight of the air conditioner.You also want to secure and correctly install your air conditioner property to prevent it from falling.Extra brackets or support may be required depending on your window.

6) Do not black airflow inside or outside the air conditioner with blinds,drapes,protective covers,shrubs or bushes.

7)Be careful of sharp edges on the front and rear fins of the unit that could cut and cause serious injury.

8)Be careful when lifting the air conditioner to install or remove the unit . Always use two or more people for this .

9)Always unplug the air conditioner before servicing it or moving it .

4.Warning and Cautions

WARNINGS: Following the safety messages is very important.

These messages can save you from being injured or killed. Warning symbols alert you to be careful and means Danger . Always follow instructions to be safe and reduce chances of injury or death . Warning and Danger signs will precede safety messages.

Electrical Safety

GROUNDING: This room air conditioner must be grounded. Grounding reduces the risk of electric shock by providing an escape wire for the electric current. The power cord has a grounding wire with a grounding plug . Plug it into an outlet that is properly installed and grounded.

WARNING: Improper use of the grounding plug can result in a risk of electric shock.

Call a qualified electrician if you don't understand the grounding instructions or if you are not sure if the air conditioner is properly grounded. If the wall outlet is not grounded, please contact an electrician to have it replaced with a proper grounded outlet.

Do not, under any circumstances, cut or remove the third (ground) prong from the power cord.

Adapter Plug: We strongly advise against using an adapter plug.

5. Installation and Accessory Parts

IMPORTANT: Observe all governing codes and ordinances.

Check the location where the air conditioner will be installed.

Make sure you have everything necessary for correct installation.

The location should provide:

- Grounded electrical outlet within 4 ft (122 cm) of where the power cord exits the air conditioner.

NOTE: Do not use an extension cord.

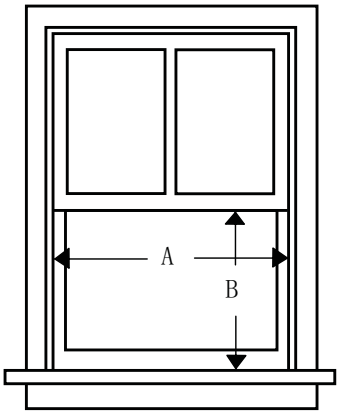
- Free movement of air in room to be cooled.
- A large enough opening for the air conditioner. Installation parts are supplied for double-hung windows.
- Adequate wall support for weight of air conditioner. Air conditioner weighs 44 lbs to 76 lbs (20.0 kg to 34.5 kg).

NOTE: Cabinet louvers must not be obstructed. Air must be able to pass freely through the cabinet louvers.

- Plug into a grounded 3 prong outlet.
- DO NOT remove the ground prong.
- DO NOT use an adapter.
- DO NOT use an extension cords.
- Failure to follow these instructions can result in death,fire, or electrical shock.

Window Installation

Window opening measurements:



A. Width

B. Height

MODEL / Dimension	ESA406K ESA406K-L ESA408K ESA408K-L ESA406K-T ESA408K-T ESA408K-E	ESA410K ESA410K-L ESA412K ESA412K-L ESA410K-T ESA410K-E
A(inch) Min	25”(63.5cm)	24½”(62.2cm)
A(inch) Max	36”(91.4cm)	38”(96.5cm)
B(inch) Min	13 3/8”(34cm)	14 9/16”(37cm)

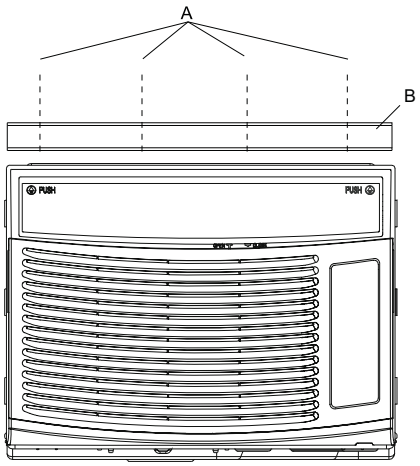
Prepare Air Conditioner for Installation

Install Top Channel

1. Place the top channel on the top of the air conditioner, lining up the holes in the top channel with the holes in the top of the air conditioner.
2. Using four 13/32” screws, attach the top channel to the air conditioner.

   (For model ESA406K,ESA408K,ESA406K-L,ESA408K-L, ESA406K-T,ESA408K-T,ESA408K-E three 13/32” screws is needed to attach the top channel to the air conditioner.)

NOTE: Your model may differ from the one shown.

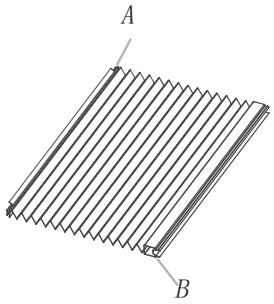


A. 13/32” screws
B. Top channel

Install Side Curtains

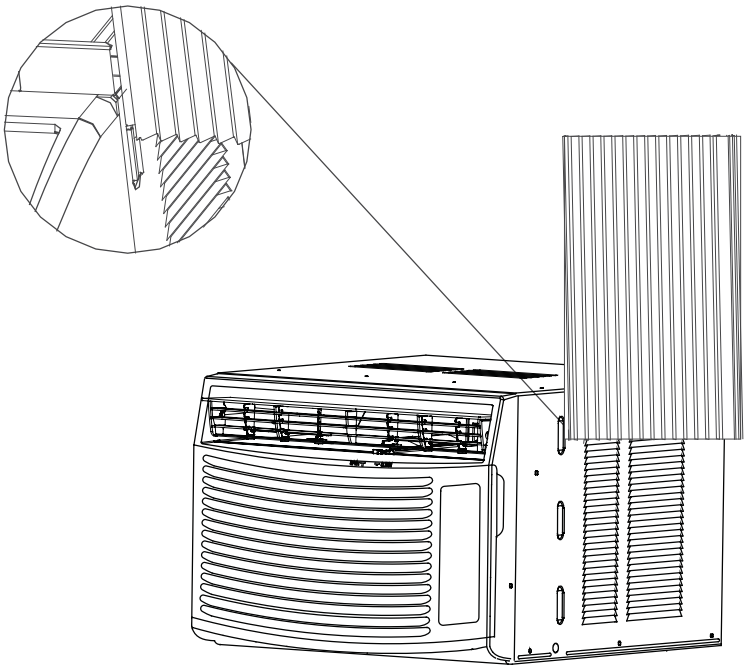
NOTE:Attach curtains to the air conditioner before placing the air conditioner in window.

1. Place the tabbed side of the side curtain in the track on the right-hand side of the air conditioner cabinet.

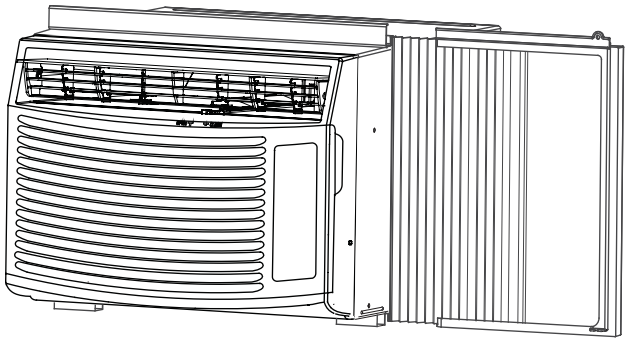


A. Tabbed side of side curtain
B. Lock edge side of side curtain

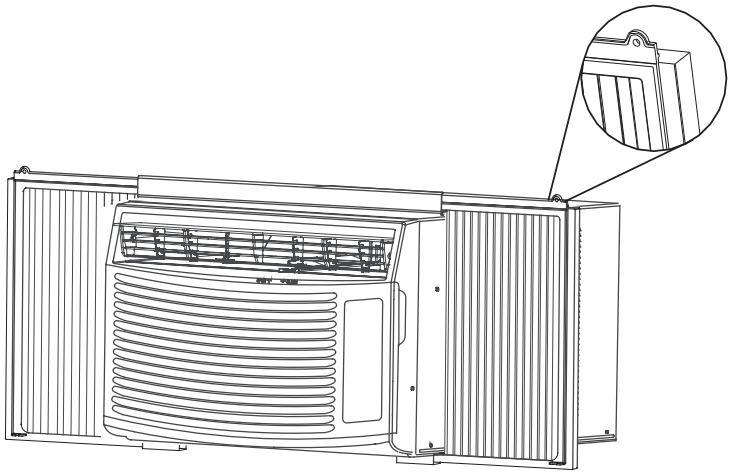
2. Slide the side curtain down the track until the curtain is aligned with the top and bottom of the air conditioner cabinet.



3. Slide the side curtain frame into the top channel on the top of the air conditioner and the track on the bottom of the air conditioner.

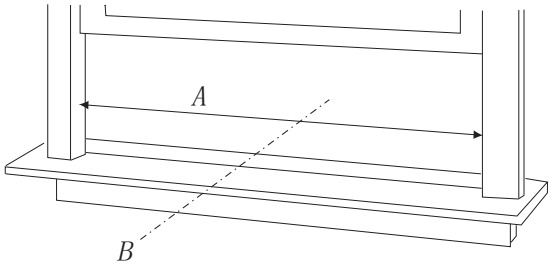


4. Slide the side curtain frame as close to the air conditioner as necessary to lock the side curtain to the frame.
5. Repeat above steps for the left-hand side curtain and frame.



Prepare Window for Installation

1. Measure the width of the window opening.
2. Mark the center line on the inside windowsill.



A. Width of window opening
B. Center line

Position Air Conditioner

NOTES:

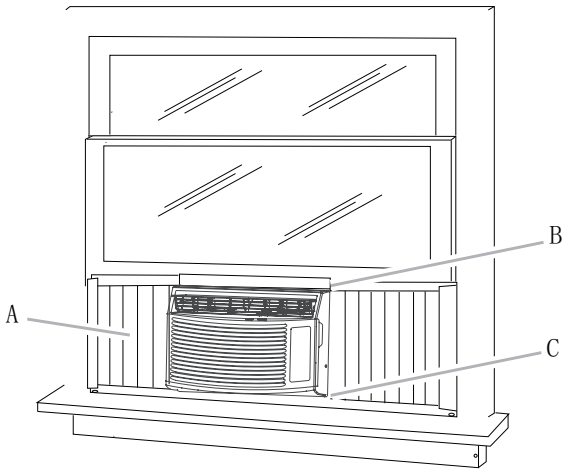
- Handle the air conditioner gently.
- Be sure your air conditioner does not fall out of the opening during installation or removal.
- The place where the power cord exits the air conditioner should be no more than 4 ft (122 cm) from a grounded outlet.

  (For model ESA406K,ESA408K,ESA406K-L,ESA408K-L, ESA406K-T,ESA408K-T,ESA408K-E electrical outlet can be grounded within 6 ft (183 cm))

- Do not block the louvers in the front panel.
- Do not block the louvers on the outside of the air conditioner.

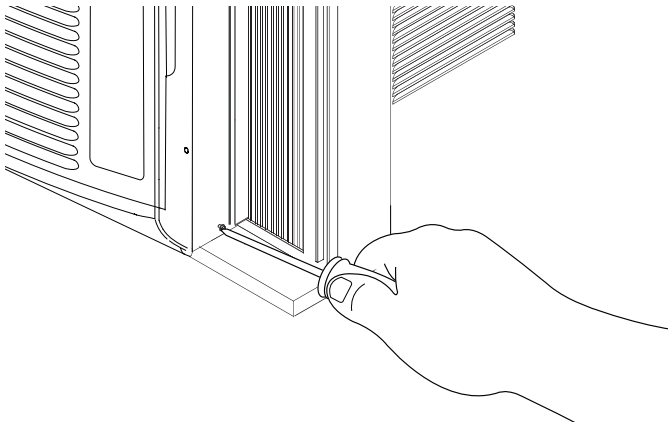
1.Center the air conditioner in the window. Lower the window sash behind the top channel to hold the cabinet in place

NOTE:Your model may differ from the one shown.

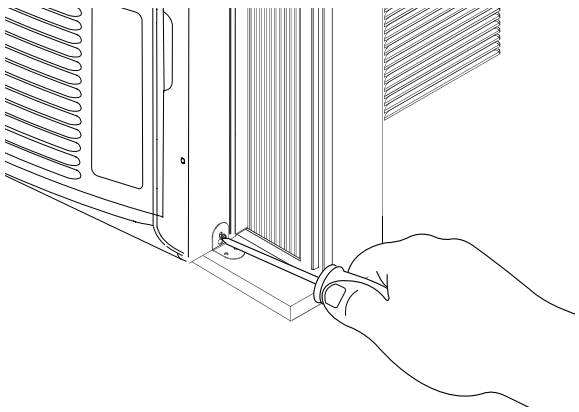


A. Side curtain against window channel
B. Window sash behind top channel
C. Bottom channel in behind windowsill

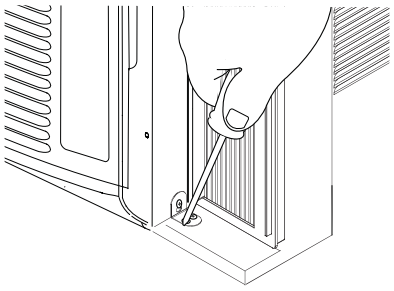
2. Loosen the screw on the right-hand side of the air conditioner cabinet near the bottom.



3. Slide the side bracket over the screw.
4. Tighten the screw. The side bracket should be resting on the windowsill.



5. Use 1/8" drill bit to drill a starter hole through the holes in the side bracket and windowsill.
6. Using two 31/32" screws, attach the side bracket to the windowsill.

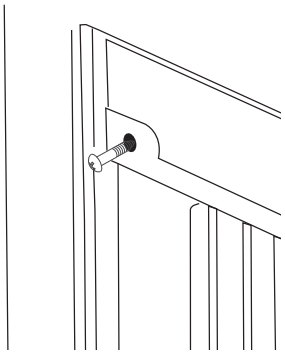


7. Repeat for side bracket installation on the left-hand side of the air conditioner.

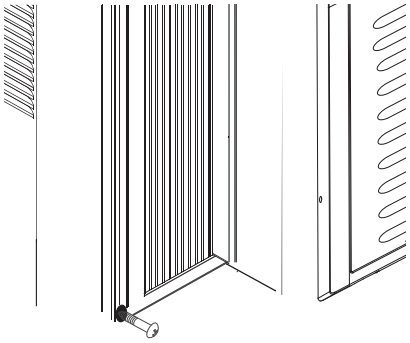
Attach Side Curtains to Window

1. Pull the left-hand curtain out until it fits into the window channel.
2. Use a 1/8" drill bit to drill a starter hole through the top hole in the side curtain and into the window sash.
3. Insert one of the 31/32" screws through the top hole of the lefthand curtain and into the window sash.
4. Repeat for the right-hand curtain.
5. Use a 1/8" drill bit to drill a starter hole through the bottom hole in the side curtain and into the window frame.
6. Insert one of the 31/32" screws through the bottom hole of the left-hand curtain and into the window frame.
7. Repeat for the right-hand curtain.

Top View

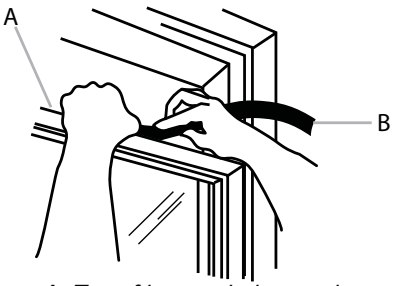


Bottom View



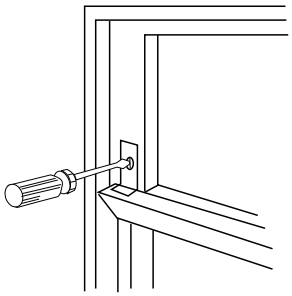
Complete Installation

1. Insert the foam seal behind the top of the lower window sash and against the glass of the upper window.



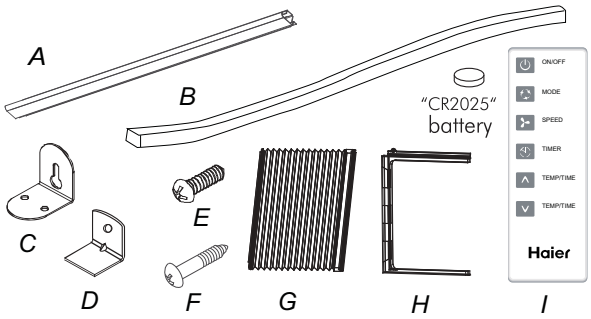
A. Top of lower window sash
B. Foam seal

2. Place the window lock bracket as shown. Use a $^{1}/_{8}$" drill bit to drill a starter hole through the hole in the window lock bracket and into the upper window.
3. Attach the window lock bracket to the upper window with one $^{31}/_{32}$" screw to secure the window in place.
4. Plug into a grounded 3 prong outlet.
5. Press RESET on the power supply cord. See “Electrical Requirements.”



Parts

Check that all parts are included in parts package.



A. Top channel
B. Foam seal
C. Side brackets (2)
D. Window lock bracket
E. 13/32" screws :
ESA410K,ESA410K-L(4)
ESA412K,ESA412K-L(4)
ESA410K-T,ESA410K-E(4)
ESA406K,ESA406K-L(3)
ESA408K,ESA408K-L(3)
ESA406K-T,ESA408K-T(3)
ESA408K-E(3)
F. 31/32" screws (9)
G. Side curtains (2)
H.Side curtain frames (2)
I. Remote control

Tools

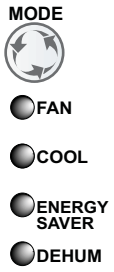
- Phillips head screwdriver
- Flat-blade screwdriver
- Scissors
- Level
- Socket wrench and sockets
- Tape measure
- Cordless drill and 1/8" bit
- Pencil
- Pliers
- Adjustable wrench

6.Parts and Functions

Mode

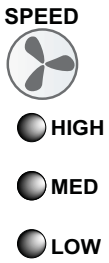
1. Press MODE until you see the indicator light glow for the desired setting.
2. Choose Fan, Cool, Energy Saver or Dehum.
   - Fan—Only the fan runs. Press SPEED to select High, Med or Low fan speed. The display shows the current room temperature.
   - Cool—Cools the room. Press SPEED to select High, Med or Low fan speed. Press the TEMP/TIME up or down arrow button to adjust the temperature.
   - Energy Saver—Fan runs only when cooling is needed. Press SPEED to select High, Med or Low fan speed. Because the fan does not circulate the room air continuously, less energy is used, but the room air is not circulated as often.
   - Dehum—Dries the room. The air conditioner automatically selects the temperature.

NOTE:Dehum mode should not be used to cool the room.
In Dehum mode,Please do not operate the speed button.



Fan Speed

1. Press FAN SPEED until you see the indicator light glow for the desired setting.
2. Choose High, Med or Low.
   - High—for maximum cooling
   - Med—for normal cooling
   - Low—for minimum cooling



Temperature

- Press the TEMP/TIME up arrow button to raise the temperature. Each time you press or hold the TEMP/TIME up arrow button, the temperature will go up 1ºF until it reaches 86°F (30°C).

  NOTE:After 5 seconds, the display will show the current room temperature.

- Press the TEMP/TIME down arrow button to lower the temperature. Each time you press or hold the TEMP/TIME down arrow button, the temperature will go down 1ºF until it reaches 61°F (16°C).
  NOTE:After 5 seconds, the display will show the current room temperature.

Timer Delay

To set the Timer for a 1-hour to 24-hour delay until the air conditioner turns off (the air conditioner must be On):

1. Press TIMER. Timer off indicator light will flash. Display will show remaining hours before the air conditioner will turn off.

2. Press the TEMP/TIME up or down arrow button to change the delay time from 1 hour to 24 hours.
3. After 5 seconds, Timer on indicator light will remain on. Display will show the current room temperature.

To set the Timer to turn on the air conditioner, keeping previous settings:

1. Turn on the air conditioner.
2. Press TIMER. Timer On indicator light will flash. Display will show remaining hours before the air conditioner will turn on.
3. Press the TEMP/TIME up or down arrow button to change the delay time from 1 hour to 24 hours.
4. Timer On indicator light will remain on.Display will show the current room temperature.

To set the Timer to turn on the air conditioner, changing the previous settings:

1. Turn on the air conditioner.
2. Adjust the mode to Fan, Cool, Energy Saver or Dehum.
3. For Fan, Cool or Energy Saver mode, adjust the fan speed to High, Med or Low.
4. Adjust the temperature between 61ºF and 86ºF (16ºC and 30ºC).
   NOTE:In Fan mode, the temperature cannot be set.
5. Press TIMER. Timer On indicator light will flash. Display will show remaining hours before the air conditioner will turn on.
6. Press the TEMP/TIME up or down arrow button to change the delay time from 1 hour to 24 hours.
7. Timer On indicator light will remain on.

To clear Timer delay program:

NOTE:Air conditioner can be either on or off.

1. Press TEMP/TIME once after it has been programmed. Display will show remaining time.
2. While the display is showing the remaining time, press TIMER until Timer Off indicator light will turn off.

To see or change the remaining time (in hours):

Timer Off :

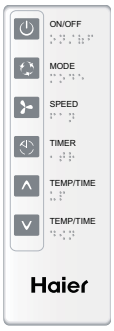
1. Press TEMP/TIME once after it has been programmed. Display on the air conditioner control panel will show remaining time.
2. While the display is showing the remaining time, press the TEMP/TIME up or down arrow button to increase or decrease the time.
3. After 5 seconds, the display on the air conditioner control panel will show the current room temperature.

Timer On :

1. Display on the air conditioner control panel will show remaining time.
2. While the display is showing the remaining time, press the TEMP/TIME up or down arrow button to increase or decrease the time.

Using the Remote Control

NOTE:Dots are Braille text for sight Impaired.
Remote control may differ in appearance.



NOTE:One CR2025 battery (included) powers the remote control. Replace battery after 6 months of use, or when the remote control starts to lose power.

Power

Press ON/OFF to turn on the air conditioner.

ON/OFF

Mode

Press MODE to choose Fan, Cool, Energy Saver or Dehum.

MODE

Speed

Press SPEED to choose High, Med or Low.

SPEED

Temperature

- Press the TEMP/TIME up arrow button to raise the temperature. Each time you press or hold the TEMP/TIME up arrow button, the temperature will go up 1ºF until it reaches 86°F (30°C).

TEMP/TIME

- Press the TEMP/TIME down arrow button to lower the temperature. Each time you press or hold the TEMP/TIME down arrow button, the temperature will go down 1ºF until it reaches 61°F (16°C).

TEMP/TIME

Timer

To set the Timer for a 1-hour to 24-hour delay before the air conditioner is turned off (the air conditioner must be On):

1. Press TIMER. Timer Off indicator light on the air conditioner control panel will flash.

2. Press the TEMP/TIME up or down arrow button to change the delay time from 1 hour to 24 hours.
3. After 5 seconds, Timer On indicator light on the air condition control panel will remain on.

To set Timer to turn on the air conditioner, keeping previous settings:

1. Turn on the air conditioner.
2. Press TIMER. Timer On indicator light on the air conditioner control panel will flash.
3. Press the TEMP/TIME up or down arrow button to change the delay time from 1 hour to 24 hours.
4. After 5 seconds, Timer On indicator light on the air conditioner control panel will remain on.

To set Timer to turn on the air conditioner, changing the previous settings:

1. Turn on the air conditioner.
2. Adjust the mode to Fan, Cool, Energy Saver or Dehum.
3. For Fan, Cool or Energy Saver mode, adjust the fan speed to High, Med or Low.
   NOTE:In Dehum mode, the Speed button will not operate.
4. Adjust the temperature between 61ºF and 86ºF (16ºC and 30ºC).
   NOTE:In Fan mode, the temperature cannot be set.
5. Press TIMER. Timer On indicator light on the air conditioner control panel will flash. Display will show remaining
6. hours before the air conditioner will turn on.
   Press the TEMP/TIME up or down arrow button to change the delay time from 1 hour to 24 hours.
7. Timer On indicator light on the air conditioner control panel will remain on.

To clear Timer delay program:
NOTE:Air conditioner can be either on or off.

1. Press TIMER once after it has been programmed. Display on the air conditioner control panel will show remaining time.
2. While the display is showing the remaining time, press TIMER untill Timer indicator light turns off.

To see or change the remaining time (in hours):

Timer Off :

1. Press TEMP/TIME once after it has been programmed. Display on the air conditioner control panel will show remaining time.
2. While the display is showing the remaining time, press the TEMP/TIME up or down arrow button to increase or decrease the time.
3. After 5 seconds, the display on the air conditioner control panel will show the current room temperature.

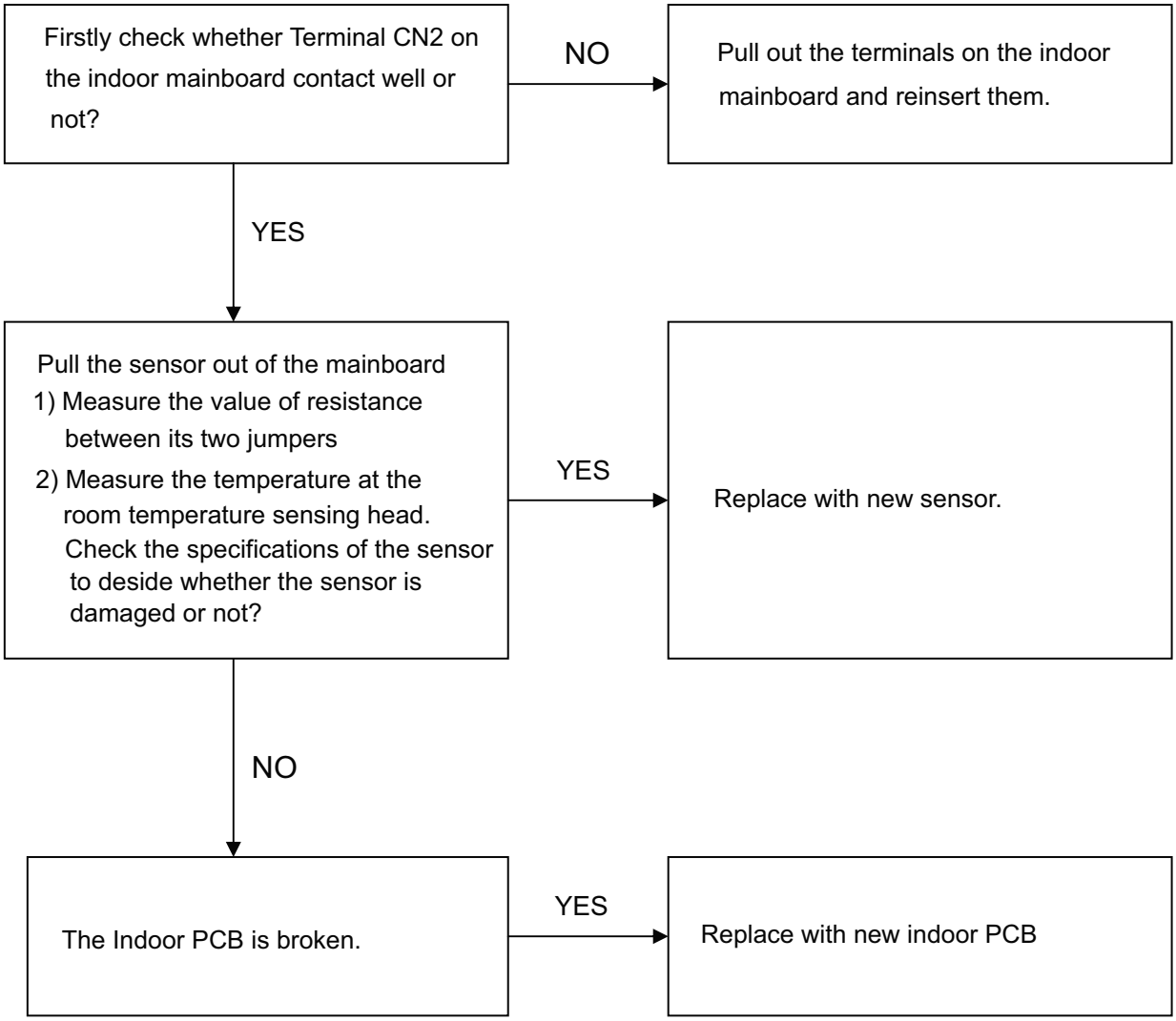
Timer On :

1. Display on the air conditioner control panel will show remaining time.
2. While the display is showing the remaining time, press the TEMP/TIME up or down arrow button to increase or decrease the time.

7. Abnormity Diagnose

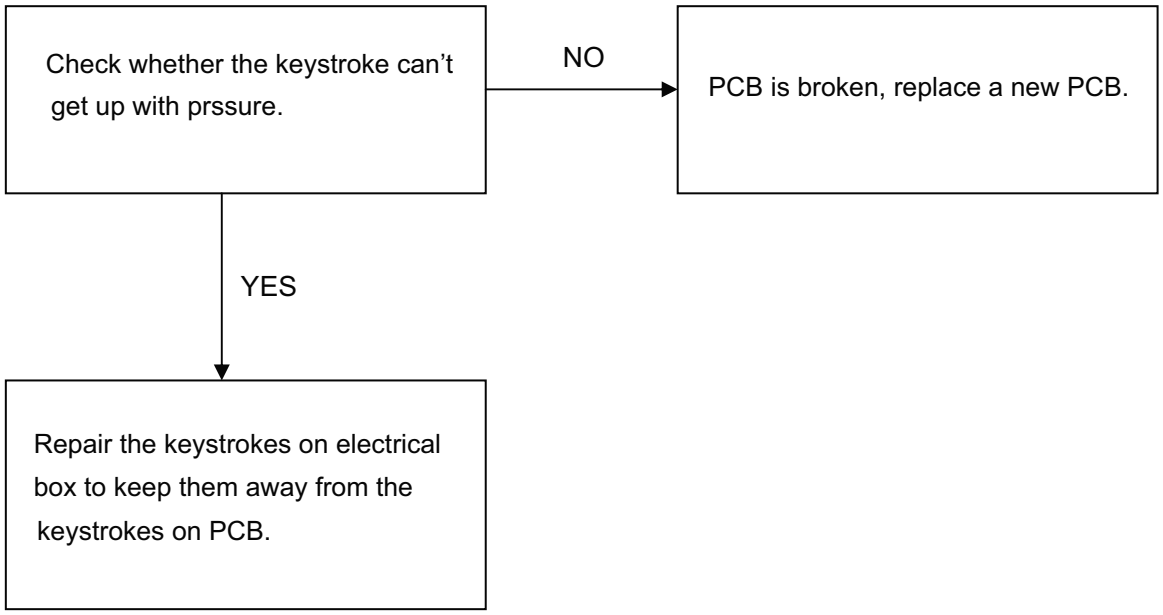
1. Sensor Diagnose:

2 seconds after the sensors open circuit or short circuit, the unit will turn off automatically and the LED will show E0 until the sensors resume.

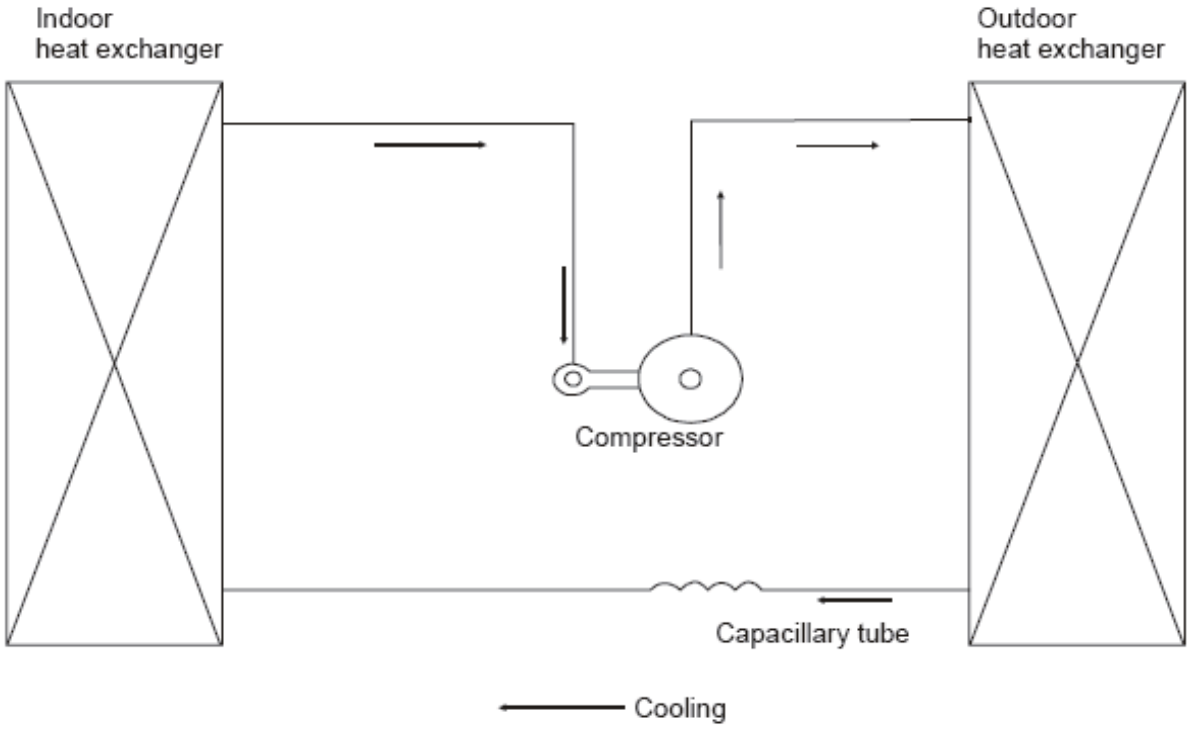

Firstly check whether Terminal CN2 on the indoor mainboard contact well or not?
NO
Pull out the terminals on the indoor mainboard and reinsert them.
YES
Pull the sensor out of the mainboard
1) Measure the value of resistance between its two jumpers
2) Measure the temperature at the room temperature sensing head. Check the specifications of the sensor to deside whether the sensor is damaged or not?
YES
Replace with new sensor.
NO
The Indoor PCB is broken.
YES
Replace with new indoor PCB

2. Keystroke circuit error diagnose:

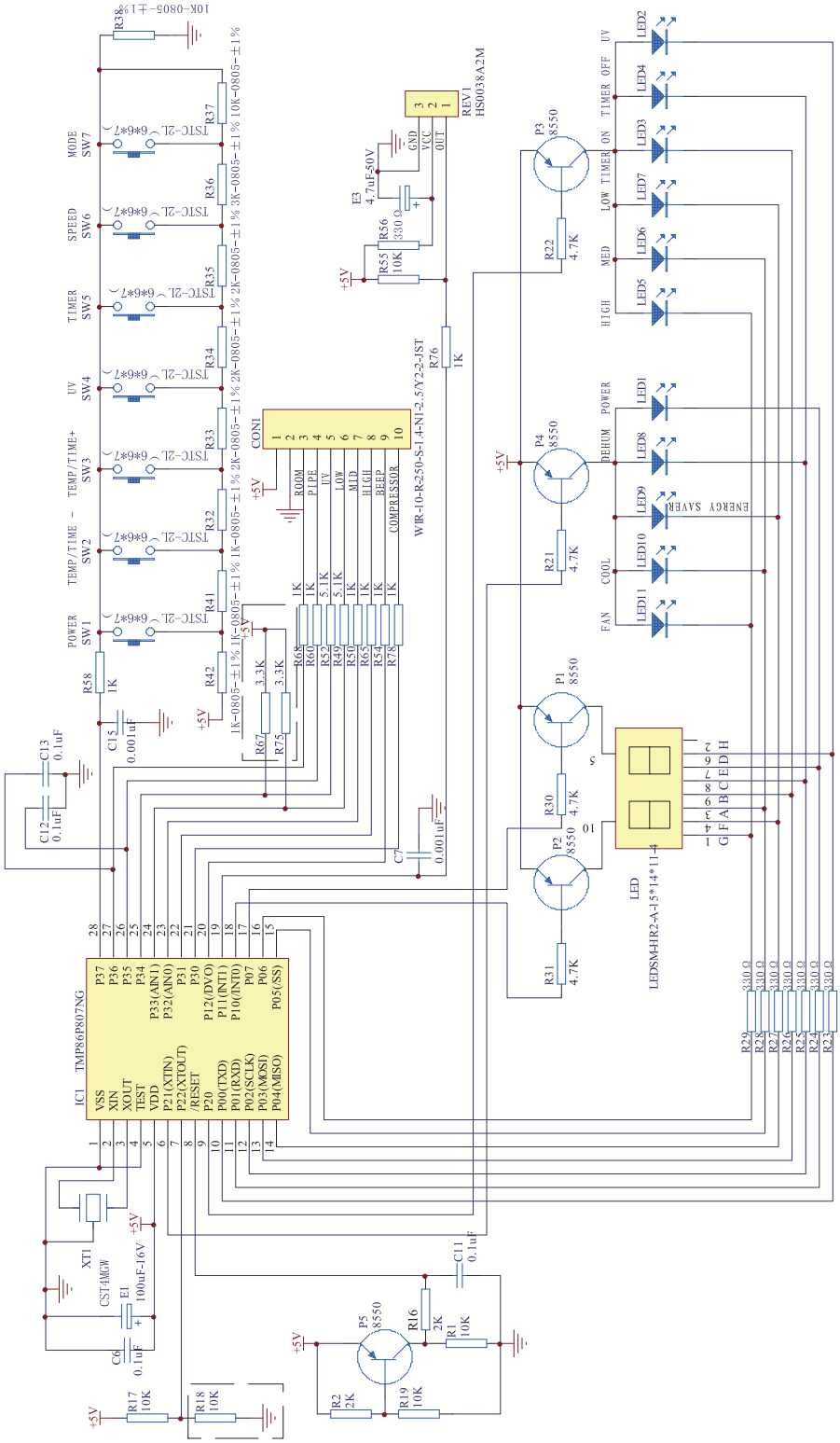
When power on for the first time, the PCB will check the keystroke circuit, is the sampling value is defferent with the theory value, the LED will show E1, which means failed keystroke circuit. The keyboard is locked and so invalid, but the remote control is working normally.

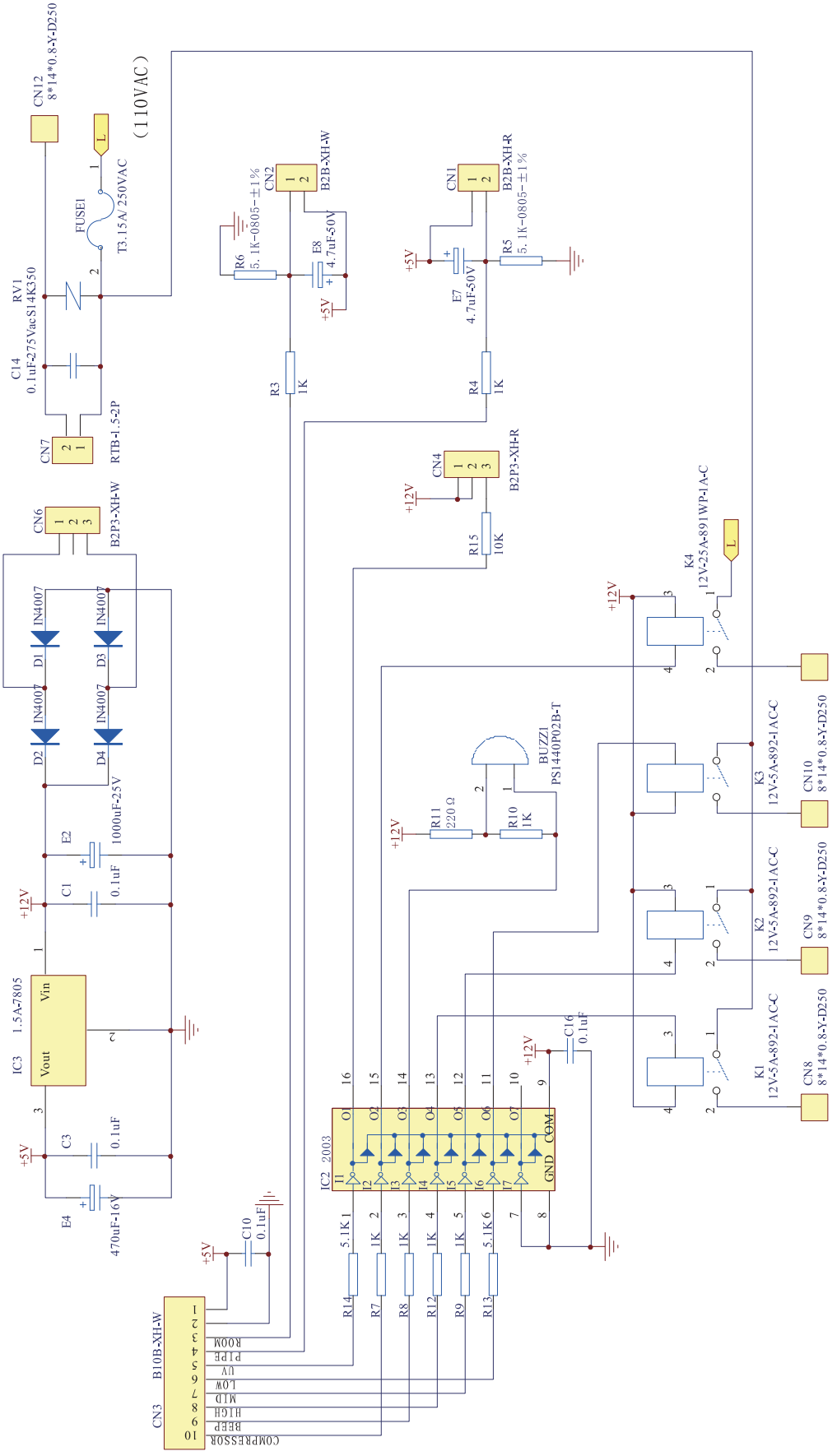

Check whether the keystroke can't get up with prssure.
NO
PCB is broken, replace a new PCB.
YES
Repair the keystrokes on electrical box to keep them away from the keystrokes on PCB.

8. System Flow Chart



9. Circuit Diagram




CN12
8*14*0.8-Y-D250
(110VAC)
L
FUSE1
T3.15A/250VAC
RV1
C14
0.1uF-275VacS14K350
CN7
RTB-1.5-2P
CN6
B2P3-XH-W
IN4007
D1
D2
D3
D4
E2
1000uF-25V
C1
0.1uF
+12V
IC3
1.5A-7805
Vin
Vout
C3
0.1uF
E4
470uF-16V
+5V
CN2
B2B-XH-W
R6
5.1K-0805-±1%
E8
4.7uF-50V
R3
1K
CN1
B2B-XH-R
R5
5.1K-0805-±1%
E7
4.7uF-50V
R4
1K
CN4
B2P3-XH-R
R15
10K
K4
12V-25A-891WP-1A-C
K3
12V-5A-892-1AC-C
K2
12V-5A-892-1AC-C
K1
12V-5A-892-1AC-C
CN10
8*14*0.8-Y-D250
CN9
8*14*0.8-Y-D250
CN8
8*14*0.8-Y-D250
BUZZ1
PS1440P02B-T
R11
220Ω
R10
1K
IC2
2003
O1
O2
O3
O4
O5
O6
O7
COM
GND
I1
I2
I3
I4
I5
I6
I7
C16
0.1uF
C10
0.1uF
R14
5.1K
R7
1K
R8
1K
R12
1K
R9
1K
R13
5.1K
CN3
B10B-XH-W
COMPRESSOR
BEEP
HIGH
MID
LOW
UV
PIPE
ROOM

10. Wiring Diagram